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ART. I.—*Remarks on the Use of Quinine in Florida, and on Malaria and its influence in that State; being the substance of a report made to the Surgeon-General U. S. Army.* By R. S. HOLMES, M. D., Med. Staff, U. S. A.

DISEASE in Florida may be said to assume always a remittent form; and quinine being the most efficient anti-intermittent known, that medicine is of incomparable value in the treatment of the diseases of that state.

The experience of physicians in the south of France, in Italy, and in the southern States of the Union, shows that a much larger dose of quinine is necessary to check a fever in those countries, than in latitudes and regions where malarious influence is not so powerful.

From experience in Florida, one is almost disposed to believe, that there is a certain rule which though apparently too mechanical in its operations, to some extent is applicable; it is this,—in proportion to the amount of miasmata in the system as shown by its effects, so must the dose of quinine, for the cure, be increased or diminished.

The largest amount of quinine I have ever given at a single dose has been eighty grains; this is the extreme dose: the average quantity is about twenty grains.

Let us commence with intermittent fever. The first question I always ask a patient who complains of this disease concerns the state of his bowels. I am careful never to give quinine with the intestines in a torpid or gorged condition, for its effects then seem to be comparatively lost. I have given it, however, when the bowels were actively purged and irritated. It seems not

must be pursued simultaneously:—to rally the patient for the time being, and to provide for a periodical return. Frictions, mustard poultices, and stimulants, will answer the first design; but I know of no other agent than quinine, in the materia medica, that will do for the second; you cannot wait for its operation, if the prostration of the patient is so complete, that you dread the return of the chill, lest it prove fatal; and in the first few minutes after seeing the patient, I have given him from thirty to sixty grains of quinine in one dose, in water or brandy; the brandy for the present contingency, but the quinine for one several hours ahead.

If the attack is sudden, as a severe one of this kind generally is, and if the patient has not been sick previously, I have never found much difficulty in having the quinine retained; if it is not retained, and time cannot be spared, I give it by enema. I have given the quinine in the highest stage of the fever, and in the lowest of prostration; never permitting any existing state of inflamed bowels or stomach to deter from its administration, or lessen the dose in which I would otherwise have given it; I have not lost a patient from inflammation following congestion, and where the quinine has been given as here mentioned. I have not seen a patient die who survived after twenty-four hours from the time of attack. The fatal cases are those in which the quinine has not been given in a proper quantity, or where it has not been thrown into the constitution for a sufficient length of time to reach the disease.

Ten distinct cases of congestive fever might be described, and exactly the same symptoms might be seen in every case; yet not two of the ten would be similar in violence. During the last year of my army medical practice in Florida, I probably treated fifty cases of congestive fever; yet two of these cases were so overpowering in their effects, the shock was so tremendous, and the termination of life so speedy, that the system seemed as if inoculated with some violent and consuming poison; death in both cases took place before the lapse of twenty hours from the first accession of the disease. In such cases as these, "distrust is cowardice and prudence folly:" the symptoms seemed to be running into death speedily. In the first case I gave eighty grains of quinine, twenty grains of calomel, and three grains of opium, after giving my usual dose of twenty grains of quinine when I first saw the case, and when the symptoms were trivial. (There are no cases that require more constant attention than these; the change of symptoms is sometimes so hurried, that from comparative health the patient will in thirty minutes time be nearly beyond relief.) The congestion was on the thoracic viscera; the patient was perfectly conscious of his situation, and an hour after he was taken, persisted in asserting that he was "a dead man;" he complained of scarcely any pain; he felt a slight inconvenience about the breast, but his breathing was quick, and deep, and laboured; his chest, to the touch, was hot and dry; his legs, and head, and feet, of a proper temperature, until towards the close of the paroxysm,

when these parts became, as they often do, of an icy coldness, (which must be carefully watched, and heat and friction applied;) his locomotion was easy, and until an hour before his death, he retained his reason, and powers of volition; he could not be induced to keep in his bed, but perpetually tossed to and fro, or jumped up to walk across the hospital floor; his pulse was not much accelerated; in the worst cases it does not reach over eighty-five or ninety; it is generally full and laboured, and easily compressed under the fingers; his stomach was in a good condition, and he easily retained anything on it; his bowels had not been moved since the attack, but readily answered to a large dose of oil given some three or four hours after the quinine was administered; his skin was dry; the secretion of urine was apparently stopped; I succeeded in getting a few ounces of blood from the arm, though it is against my practice to bleed in this disease; I cupped the breast freely, I kept warm fomentations to the legs and feet, and bowels, with friction kept up at intervals, when the hot and wet cloths were not applied; yet not one of these means seemed to stop for an instant the deadly onward course of the symptoms; the quinine, of which he had taken one hundred grains in four hours' time, did not affect him in any single particular that I could discover; involuntary discharges came on shortly before death; the body became prostrate, and but for the deep and heavy breathing, accomplished at long intervals, lifeless; the pulse was scarcely perceptible at the wrists, and indistinctly at the carotids; the heat of the chest to the touch was perfect to the last, and even the skin externally was suffused with blood; the extremities became as cold as dead flesh, the jaws were relaxed, the head thrown far back, and the arms extended at right angles to the body; I counted thirty to forty-five seconds between several of the final inspirations; and the powerful dragoon soldier had to yield at last, his robust strength and apparent powers of life not being competent for such an emergency.

In such cases as these I can compare the effect to no other operation that I have a knowledge of, than the overwhelming shock occasionally communicated by a severe wound; there is apparently the same want of a proper cause to account for death; no lesion of any vital organ may be perceptible; and the senses, and almost the strength of a perfect man, are retained to the end. A new reading of a great poet, may perhaps help us to explain the cause: the nerves are "jangled out of tune."

This patient had been five years in Florida; he had never been sick for a day's time before this; he was a large, strong and active man. The place where he died, Fort White, on the Santa Fe river in Florida, was always famed for its severe malarious diseases.

In a post-mortem examination of this case, these were the appearances:— The viscera of the abdomen were in apparently a sound and healthy condition; the contents of the cranium were in a healthy state; the skin around the whole circumference of the chest was discoloured by extravasated blood;

the vessels of the heart were deeply engorged with blood; the auricles and right ventricle were filled; and the lungs bled as if a sponge had been cut that was soaked in blood; the whole blood of the body seemed to have found a common reservoir in the thorax.

The foregoing case affords a good example of the rule by which we are guided in giving quinine in congestive fever. It is probably as well to give it during the intervals of the paroxysm, but we never wait for that time in cases of the slightest emergency; experience has shown that it is unnecessary, and I have frequently given thirty or more grains, where the fever was at its height, with the happiest effects. If the patient in the foregoing case could have surmounted the first attack, I have no doubt the quinine would have modified, or checked any subsequent one: but it was necessarily given too late to control the symptoms, and there always will be cases in which the excess of the paroxysm cannot be foretold.

No term was ever more properly applied to denote a disease than this term congestive; it has been said there is congestion in other fevers besides this; so there is, but it is a congestion of as different a type as that between typhus and intermittent; it is a congestion the end of which, however slight may be its onset, tends to a fatal termination; nor is it brought on purely by the time of the paroxysm; any quick exciting cause, be it ever so trivial, the entrance of a stranger, the firing of a gun, some one bursting suddenly into the room, even the visit of the physician, will throw the blood from the extremities, or more properly perhaps prevent its due propulsion into them; the lips will become livid, the tip of the nose and ears cold, the feet and legs cold, the cheeks blanched; and yet the patient, strange to say, will be unconscious generally that a change has come over him; all this too, independent of the regular periodic time, when the true paroxysm comes on. In the intervals he will be torpid, morose; his mind dull, slow in gathering up his thoughts, his pulse laboring and full and slow, his bowels sluggish, or if irritation has set in upon them frequently purged; the secretions from his liver, kidneys, and skin, improperly carried on, or almost checked: if the congestion is on the brain, he will complain of dull pain in the head, if on the thorax, his breathing will be hastened, if on the abdomen, inflammation of the small intestines will probably soon set in, if the disease is not speedily checked. During the paroxysm the prostration is so great that the patient will not make an effort for hours to move or turn in his bed; his feet, legs, hands and head will be all cold to the touch; yet he will not complain of being cold; over the point where the congestion exists, the heart will be some degrees above the natural standard: you can scarcely get an answer to your questions, the patient looking you in the eye, and thinking for some seconds before he can collect his own thoughts and yours; his countenance is distressed and peculiar, and in many cases an experienced eye could tell by glancing at the patient, what is his disease; now in a case of this kind, if you have an aversion to large doses of quinine given at once; if you say

this agent produces great excitement in the brain, and there are already intense congestion and pain there, or that it produces irritation of the bowels, when there is congestion and probably irritation already existing; if this is the mode in which you reason, the probability is, that within the next few days your patient will die; for this fear of quinine, or of a large dose, *why* is not exactly known, has frightened many a patient into the grave, and will in time to come.

I never think of these objections without remembering a case that lately happened in the south, with the particulars of which I was acquainted. A person in whose recovery great interest was felt by a large circle of friends, was attacked by a dangerous remittent disease, with signs from the first day of inflammation, and congestion in the stomach and intestines. So great was the inflammation, as to lead one to doubt whether it did not take precedence of the disease peculiar to the climate, under which the patient was suffering; the evacuations from the bowels were frequent; the pain so great on pressure that the weight of the bed-clothes could scarcely be borne; the throbbings of the abdominal aorta could be as distinctly counted at the umbilicus as over the course of the carotids; the consequent weakness peculiar to all such irritations of the small intestines was great: this irritation had held out against all active agents, for six days, with scarcely any abatement; but conjoined with this, was the disease under which the patient was said to be suffering; towards nightfall of every day, the extremities would become cold, while the heat of the abdomen was always above its natural standard; the crown of the head, the lips, the fingers, the feet and limbs would be all cold and livid; this would be succeeded by a fever during the night, which would at last attain its acme about ten o'clock on the ensuing morning; during the day, the patient would lay in an exhausted state, until the evening again would bring about the same alarming cold stage; from some access of which so great was the prostration, that it might reasonably be feared a rally could not be made. The physician who had from the first attended the patient, a gentleman of skill in his profession, but impressed with the idea of the irritating power of quinine, had directed his whole efforts towards the irritation of the intestines, letting the fever run its course unchecked, lest the irritating power of the agent in dispute would aggravate every symptom. The question was asked him on the seventh day, how long he thought the patient could exist, with the fever at such a height as it had now attained? His answer was, not for forty-eight hours; and how soon would the simple irritation of the intestines terminate in death, if as uncontrollable as it had heretofore been? "Probably in three or four days." Why not then run this risk of inflammation, check the fever instantly by a large dose of quinine, and have but one disease to contend with? With great hesitation, forty grains of quinine were allowed to be given in two doses in twenty-four hours; the next paroxysm of the fever was trifling, and on the ensuing day banished. Every effort was now directed to the inflam-

mation, which proved severe and obstinate, but from which, in the course of six weeks, the patient recovered.

The following is an analysis of the points of practice spoken of in the preceding remarks which I have always followed, with such results as to justify me in believing in their propriety.

Every periodical disease is to be checked immediately. Quinine, as a remedy for periodicity, is to be given regardless of any existing state of inflammation. Never give quinine in divided doses when directed for the immediate cure of a periodical disease. To be certain of the operation of quinine in a constitution with which you are not acquainted, it must be given eighteen hours before the desired result. In emergent cases it may be given in the lowest state of prostration, or the highest grade of the fever. As a general rule fifteeen to twenty grains will be necessary for an intermittent, and thirty to fifty, for a congestive fever. Never give quinine for the cure of a periodical disease in anticipation, when the periodicity exceeds five days.

In small doses quinine is a tonic, in larger doses its tonic is quickly followed by its stimulating property; but in grave periodical diseases I am disposed to think its sedative effect the one which tells most certainly; but to procure this in any perfection it must be given in a large dose; and here it seems to me has arisen the great discrepancy *in times*, at which quinine has been given; any dose of quinine that produces sedation, generally goes through a stimulating process; if this process happens at the onset of an intermittent fever, the fever will in all probability be checked by it; and hence you have cases in which quinine checks a chill when given immediately before it comes on; but it will be seen from the preceding remarks, concerning the difference in the cure of a quotidian and tertian, that this immediate cure by stimulation is not so certain or effectual as the subsequent one, which I think is accomplished by the sedative effect of this article; in this sedative effect, I think, consists the great anti-periodic power of quinine. Tartar emetic in large doses is also a powerful remedy against periodicity by the same property; opium and belladonna also by the same, and alcohol, piperine, capsicum, etc., by the possession of tonic and stimulating effects. If the sedative properties of tartar emetic could be procured independent of its tendency to irritate, I can think of no remedy for serious periodic diseases surpassing it, yet this property is not produced in any great degree by small doses of the article, nor does it follow the exhibition of the like doses of quinine.

It is the continued small doses of this agent that harass and irritate. A patient at the north takes one or two grains almost daily for weeks, until he has swallowed sixty or more grains in the course of a month, and then is indignant at the idea of a fifty or sixty grain dose being given at once in Florida, which suffices for the same period. As large an amount of calomel may be taken at once with but little bad effect; but give it in divided doses,

and the result is irritation, fever, and ptyalism. Small continued doses of tonics, like quinine, cannot be given long with impunity. The most natural conclusion, if you would give quassia for weeks, would be that your patient would finally reject his food; his stomach would be debilitated instead of strengthened, and placed in a proper state to take on inflammation.

There is one great source of error to a northern physician, in reading the accounts of the large doses of quinine given at the south: this consists in the supposition that these doses are often repeated, while the truth is, the large dose generally suffices for the cure of the disease. It is the nature of intermittents of course to continue their attacks, when the patient resides in the same atmosphere that gave origin to the disease.

The result was as follows, in ascertaining how much quinine had been given to the ten men at a post in Florida, (the average number of men being 220,) who had taken the largest and most frequent doses:

Lewis, grains 220 in 6 months and 7 days.
Wise, grains 135 in 6 months and 8 days.
Sheriden, grains 95 in 5 months.
Nash, grains 140 in 3 months and 27 days.
Smith, grains 150 in 5 months and 2 days.
Johnson, grains 150 in 5 months and 6 days.
Bowers, grains 80 in 4 months.
Thomas, grains 120 in 5 months and 6 days.
Chapman, grains 100 in 4 months and 13 days.
Lord, grains 70 in 3 months and 26 days.

The names of these men were taken from the hospital books; they had taken more than any other ten men in the command; and it is somewhat singular that on the day this table was made out, not one of these men was on the sick report, nor had any one of them been on for several days previous. Under peculiar circumstances greater quantities of quinine may be taken by an equal number of men in the same time, though I think this is not an unfair representation of the amount given in Florida. You give fifteen grains for an intermittent, and the disease, for the time at least, is checked; with fifty grains at once in a congestive fever the like result is accomplished.

In diseases of this climate, eminently periodic in their character, and of a highly dangerous type, it will be apparent that the plan of giving quinine in divided doses cannot be entertained. The disease is one in which you cannot afford to lose so much time; many cases of fever are presented in which you are convinced the patient will succumb to a second or third paroxysm; the first of these may, with great certainty, be expected at the end, or before the lapse of twenty-four hours; and one would be operating by the rule of books, without ever consulting the evidence of his own senses, who would continue to give quinine in small doses up to the very

hour of the expected and dreaded paroxysm. It has been seen that it requires eighteen hours at least for the full effects of quinine to be manifested; yet many physicians will give ten or more grains, in two grain doses, commencing about ten or twelve hours before the expected highest grade of the paroxysm; it is evident that scarcely a grain of quinine is here brought to bear on the fever; but will not the third paroxysm be checked by the ten grains, if that quantity is sufficient? It probably may, but be the quinine a tonic, a sedative, or a stimulant, you want its power in one of these respects concentrated on the fever. It cannot be thought strange that the practice at the north of giving quinine in divided doses, for bilious, remittent, and congestive fevers, should prove so unsuccessful. Though the fevers there do not require such large doses of this article as at the south, they require very different ones from those that are now given. I have known in Chester county, Pennsylvania, in a small district, one-fourth the number of patients die, who were seized with a pure miasmatic, congestive fever, differing from that of Florida only in its lighter grade; yet the disease, as treated by army surgeons in Florida, with quinine, was one of the least mortal, probably not more than one in forty cases proving fatal.

I had an attack of congestive fever in December, 1841, a month after I came to the territory, with which I lingered for three weeks on the verge of the grave, at a distant post, and with no better medical assistance or advice than I could give myself. A stranger to the powers of quinine, I took it in grain doses, for a fever which I am in the habit of checking now in a day's time, by drachms, instead of grains, of this great agent. The congestion was on the brain, the pain so intolerable that the slightest motion could scarcely be borne; the intolerance of light and sound perfectly tormenting to the senses; the muscular system weak, and languid; the eyes and cheeks cadaverous, and after a few days deeply sunken in. How often, subsequently, with all these symptoms at their height, have I given forty or fifty grains of quinine,—have seen its effects on the brain, aggravating for the time every symptom, or occasionally but slightly affecting the disease for some hours; and then, as the sedative effects came on, have beheld the patient drop into a composed sleep, his skin become moist and natural, (no better diaphoretic than this agent, in many states of the system,) and awake in six or eight hours, a man really free from disease; this may appear all exaggerated to those who have never seen congestion, or its treatment in this manner, but to any one who has, I appeal whether this description is not unvarnished truth.

This agent is essentially opposed to the periodic effects of malaria, nor are these effects by remission always apparent; nor do we give quinine only for fevers. They comprise but a small class of the diseases that remit; and this remission may be so slight, or brief, that neither the patient nor physician can discern it; and the degrees are of all grades, from the slightest

alleviation of the symptoms, to the enjoyment of almost perfect health. We know of no disease occurring in a malarious region where remission may not be suspected, for there seems to be no disordered action that cannot be affected by this powerful agent. If the physician in the south can be blamed for his too great enthusiasm for the specific (if there is such a thing) for all these ills, he has certainly chosen a handmaiden worthy of his worship. To one accustomed to look at the slow and languid operation of medicines, in fevers at the north, and the want of faith with which they are so often given, the operations of this medicine appear miraculous: they are only equaled, when it has fair play, by its certainty.

The immediate effects of a large dose of quinine are, buzzing, and murmuring in the ears; a partial deafness, which often continues for twenty-four hours; a great sense of fullness about the head, and often a dull pain across the forehead; there is generally more or less excitement or partial delirium of the mind, without exciting the spirits in any degree. I have seen patients under the effects of quinine wander, and talk incoherently, as if from the influence of alcohol. Occasionally it will produce a pricking sensation in the skin, and a quivering in the muscles of the fingers and eyelids. One patient I knew who was always made perfectly insane, and beside himself so that he had to be confined, even by the administration of five grains of quinine. I have never seen any of these symptoms last much longer than twenty-four hours.

Many more severe effects have been remotely ascribed to quinine or rather to the large doses of it as given in the south, such as the enlargement of the liver, and spleen; inflammation of the stomach and bowels of a sub-acute character; a dropsical condition of the body; palpitation of the heart, etc. These effects were known to the world as sequelæ to intermittent and other fevers of a miasmatic origin, before quinine was ever given in its present doses, or in fact before it was known. I have never found any occasion to believe that quinine gives origin to inflammation. Chronic affections of the liver and spleen are incident to hot and malarious climates, without disease even as a cause. I believe them to be often the pure result of malaria. Enlarged spleens are quite common, chiefly with those who have suffered from intermittents, but frequently with persons who have never been sick, though living in a malarious district. There is one effect of quinine which I would not mention were it not proper to say whatever one believes and has seen: it is the soothing and quieting action that it exerts over the stomach and intestines. I have never seen this mentioned, but it has been frequently forced on my observation.

The effects of malaria are most evident in the convalescence of disease. This is a matter accomplished with great difficulty in the most sickly regions of Florida; and chiefly if the disease has been long in its continuance. From the effects of a severe fever, or dysentery, a patient will remain for weeks in *statu quo:* when on any day you might expect to find him well,

until at last you examine the pulse attentively, and find that hectic has set in; the patient has night sweats; the bowels are loose; pain in the abdomen and head; emaciation comes on; the tone of the stomach is weakened; the secretions deranged; the skin improperly exerting its offices; the assimilating power acting improperly, and the vis vitæ irreparably shattered. This state of things I have only seen at the most unhealthy posts, especially at Forts Macomb and White, where I was first stationed when I came to the territory. I have sent patients from there to the general hospital at Cedar Keys, in this condition, of whom a causal observer would have said, they will not live to reach the island; yet no one could fix on any disease these men had: they were convalescing, and under the better atmosphere of the sea shore, they nearly all recovered.

One circumstance has often attracted my attention, in cases of diseases from miasmatic origin in this country; that is, the abnormal actions of the heart: its beats, if the patient has been weakened by disease, are so tumultuous and diversified, but afford withal so little sign of organic lesion, that if not acquainted with the former condition, your prognosis will be most unfavourable. I have seen, however, but few permanently bad results from this cause. If you strengthen the patient by tonics, and remove him to a more healthy spot, even in Florida he will recover. I look upon this as a deranged miasmatic nervous action in that organ, for which change of place and tonics afford the best cure.

I believe there is scarcely a person even in good health in a miasmatic region, who is not subjected in some degree to the effects of the unseen agent around him. His rest will be broken at night; his appetite will not be so good as formerly; he will not enjoy that feeling of full health he has been accustomed to; his system will be attacked from time to time by the offshoots of the diseases preying on others around him, though he will not be sick, and may escape with a like freedom from disease during all his sojourn in the country: but the whole constitution seems in some degree to labour under the influence of malaria; slight wounds that would heal elsewhere in a few days time, must here undergo the slow process of suppuration and granulation, and even this does not come on easily, the wound remaining for days without any visible advance towards a cure. You cannot persuade a slight incision of the skin to heal by adhesive inflammation; and I have repeatedly seen wounds in habits that were to all intents healthy, assume a deep burrowing suppuration. I was in the habit at first of discharging patients when the wound had closed by granulations, if not on an important part of the body, and not interfering with common duties; but on the slightest exercise or excitement, inflammation would set in afresh, in surrounding parts; the granulations would assume an unhealthy appearance; suppuration, if it advanced, would be slow in progress, and of an unhealthy form: perfect rest, good diet, occasionally tonics, and poultices or stimulants to the part, were necessary for a cure. Many of these wounds,

especially about the fingers, ran rapidly into deep-seated inflammations. A miasmatic constitution of the atmosphere is particularly favourable to the formation of whitlows. I treated these by deep incisions, and generally, some hours after, sprinkled the part over with calomel; but the first incisions scarcely ever proved sufficient; the suppuration would extend beyond them. The pain of these whitlows will take on regular remissions.

ART. II.—*Account of a Blighted Fœtus of the third month, having the umbilical cord extensively coiled around the right knee and lower third of the thigh, discharged with a living child at full term: with some reflections connected with the questions of Superfœtation and Spontaneous Amputation.* By A. LOPEZ, M. D. (Read before the Medical Society of Mobile, Alabama, May 6, 1845.)

I PRESENT to the society this evening, a specimen of a *Blighted Fœtus*, whose history is as follows:

Louisa, a coloured woman, the mother of other children, was delivered by a midwife on the 10th March, 1839, of a *healthy living child* of perfect development, and at the full term of gestation. On Tuesday the 12th, I was summoned in great haste, and on my arrival found the conclave of old women terribly astounded by the discovery of a new subject, which had been thrust aside unobserved, on the day of parturition, among the soiled clothing and discharges from the uterus. Upon examination, it proved to be the specimen which I now exhibit. To all appearances it had attained its *4th month*, although it is with difficulty that we can accurately specify the early fœtal age, owing to the uncertainty as to the time of conception, and because, we all know how much the growth of different fœtuses varies. The skull is so entirely compressed as to expand its proportions and bring the opposite parietal surfaces in close contact. The entire body is likewise much distorted and flattened, doubtless from the pressure exercised upon its plastic nature by the uterus and the other child, for so long a period prior to its expulsion. There is not the slightest decomposition, and its aspect was even less unfavourable, before it had undergone such long maceration in the alcohol, necessary for its extra-uterine preservation. The membrane which you see was found separately discharged. I obtained no information concerning the placenta, but an additional interest is afforded to the case, from the fact, that the *umbilical cord, no larger than a small thread, will be seen entwined around the right knee and the lower third of the thigh.* It was much more so when I first possessed the specimen, but on its transportation from South Carolina to this place, the bottle was broken, the spirit evaporated and the entire surface covered with a thick mould, so